

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 14 SEP 2005

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To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/011001

International filing date (day/month/year)
09.06.2005

Priority date (day/month/year)
11.06.2004

International Patent Classification (IPC) or both national classification and IPC
G03G9/097, C08G63/688, C08G63/685

Applicant
CANON KABUSHIKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b/s(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Masson, P
Telephone No. +49 89 2399-2051



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/011001

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/011001

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43bis.1 and 70.10)

and / or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

see form 210

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Cf V:

Reference is made to the following documents:

- D1: EP-A-1 254 918 (CANON KABUSHIKI KAISHA) 6 November 2002 (2002-11-06)
- D2: EP-A-1 253 162 (CANON KABUSHIKI KAISHA) 30 October 2002 (2002-10-30)
- D3: EP-A-1 253 161 (CANON KABUSHIKI KAISHA) 30 October 2002 (2002-10-30)
- D4: EP-A-1 236 755 (CANON KABUSHIKI KAISHA) 4 September 2002 (2002-09-04)
- D5: EP-A-1 336 635 (CANON KABUSHIKI KAISHA) 20 August 2003 (2003-08-20)
- D6: EP-A-1 245 605 (CANON KABUSHIKI KAISHA) 2 October 2002 (2002-10-02)
- D7: WO 2004/038512 A (CANON KABUSHIKI KAISHA; MIHARA, CHIEKO; YANO, TETSUYA; KOZAKI, SHINYA;) 6 May 2004 (2004-05-06)
- D8: WO 2004/037889 A (CANON KK [JP]; FUKUI TATSUKI [JP]; YANO TETSUYA [JP]; MIHARA CHIEKO [J] 6 May 2004 (2004-05-06)
- D9: EP-A-1 340 777 (CANON KABUSHIKI KAISHA) 3 September 2003 (2003-09-03)
- D10: WO 2004/061530 A (CANON KABUSHIKI KAISHA; MIHARA, CHIEKO; YANO, TETSUYA; KOZAKI, SHINYA;) 22 July 2004 (2004-07-22)
- D11: WO 2004/061529 A (CANON KABUSHIKI KAISHA; FUKUI, TATSUKI; YANO, TETSUYA; MIHARA, CHIEKO;) 22 July 2004 (2004-07-22)
- D12: CAMMAS S ET AL: "Polymers of malic acid and 3-alkylmalic acid as synthetic PHAs in the design of biocompatible hydrolyzable devices" INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, BUTTERWORTH & CO., GUILDFORD, GB, vol. 25, 1999, pages 273-282, XP002339169 ISSN: 0141-8130
- D13: YAMAKOA T ET AL: "Synthesis and properties of malic acid-containing functional polymers" INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, BUTTERWORTH & CO., GUILDFORD, GB, vol. 25, 1999, pages 265-271, XP002339172 ISSN: 0141-8130
- D14: TROLLSAS M ET AL: "HYDROPHILIC ALIPHATIC POLYESTERS: DESIGN, SYNTHESIS, AND RING-OPENING POLYMERIZATION OF FUNCTIONAL CYCLIC ESTERS" MACROMOLECULES, AMERICAN CHEMICAL SOCIETY. EASTON, US, vol. 33, no. 13, 27 June 2000 (2000-

06-27), pages 4619-4627, XP000950237 ISSN: 0024-9297

Cf V:

Article 33(2) PCT:

Claim 1:

None of the documents discloses the same combination of features as disclosed in **claim 1**.

Thus, the subject matter of **claim 1** meets the requirements of Article 33(2) PCT.

The same remark applies also to **claims 8,9 and 10**.

Claim 5:

None of the documents discloses the same combination of features as disclosed in **claim 5**.

Thus, the subject matter of **claim 5** meets the requirements of Article 33(2) PCT.

Article 33(3) PCT:

Document D7 represents the closest prior art. The difference **between D7 and claim 5** is that **in claim 5**, the carboxylic acid (or salt thereof) is directly bonded to the polymer backbone whereas in **D7**, there is at least a methylene group between the carboxylic group and the polymer backbone. Since there are no comparative examples in accordance with **D7**, the objective technical problem is to provide further charge control agents based on functionalised PHA which have a good chargeability and a good stability with time.

Since in all the **documents D1 to D9**, there are no indications to specifically have a direct link between the carboxylic acid and the backbone in PHAs and since in **D12 to D14**, the polymers in accordance with formula (5) of claim 5 are used for medical applications, there are no indications to modify the formula of **compounds of D7**.

Thus, the subject matter of **claim 5** meets the requirements of Article 33(3) PCT.

The same reasoning applies also to **claim 1** (starting either from D7 or from D5).

Thus, the subject matter of **claim 1** meets the requirements of Article 33(3) PCT.

The same remark applies also to **claims 8,9 and 10**.

Article 33(4) PCT:

The subject matter of **all claims** is capable of industrial applicability.

Cf VI:

Published documents under Rule 70.10 PCT:

WO-A-2004/061530:

Publication date: 22.07.2004

Filing date: 26.12.2003

Priority date: 27.12.2002

WO-A-2004/061529

Publication date: 22.07.2004

Filing date: 26.12.2003

Priority date: 27.12.2002

Cf VII:

In page 50 (lines 6 to 10), n is not present in the formula (23).

In figure 7, the reference sign 41 is not explained and should be deleted. The same remark applies also to reference signs H, 6, and 10 in figure 1, 13, 15, 16, 18, A, B, and 17 in figure 2, and the reference signs in figures 5 and 6.

In tables 1 and 4, it is not clear if the results concerning the chargeability concern the toner or the corresponding double component.

Cf VIII:

Article 6 PCT:

In claims 1 and 5 the definition of the formula of the polyhydroxyalkanoate (PHA) is not clear since the specifications regarding l, m, Z_{1a}, Z_{1b} and their equivalents in claim 5 are defined only by means of provisos. Thus, it is not clear what are the real ranges for l and m and the entire definition of Z_{1a}, Z_{1b} and their equivalents in claim 5. Thus one cannot define the scope of protection of these claims.

Claims 2 to 4 and 6 to 7 are not supported by the description.